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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,259	02/26/2002	Takashi Sato	4034-8	3640
23117	7590	07/26/2004	EXAMINER	
NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714			DI GRAZIO, JEANNE A	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 07/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/082,259

Applicant(s)

SATO ET AL.

Examiner

Jeanne A. Di Grazio

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6,7,9 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,7,9 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claims

Claims 1-4, 6-7, and 9-10 are pending with claims 5, 8, and 11 cancelled per Applicant's Response to Non-Final Office Action (Response of May 14, 2004). Claims 1, 7, 9, and 10 are amended.

Priority

Priority to Japanese Patent Application No. 2001-051398 (Feb. 27, 2001) is claimed.

Claim Objections

Claim 6 is objected to because of the following informalities.

As to claim 6, "light outgoing plane" lacks antecedent basis, a "light outgoing plane" having not been properly previously introduced.

Appropriate correction is **required**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 4, 6, 7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 4,088,400 (to Assouline et al.) in view of United States Patent 4,229,783 (to Eberhardt) and further in view of Japanese Patent Application No. 02-079826 (to Mukai et al.).

As to claim 1 (amended), with reference to at least Figure 1, Assouline has a display element including a liquid crystal layer (Figure 1, plate 3, column 2, lines 21-25), and at least one polarizer including a front polarizer (Figure 1, polarizer 22), a light diffusing element, which is disposed in front of the display element (Figure 1, diffuser 4), and a polarizing element, which is disposed in front of the light diffusing element (Figure 1, polarizer 23) wherein the light diffusing element (4) is located between the front polarizer (22) and the polarizing element (23) all of which are located in front of the liquid crystal layer (3), and wherein an absorption axis of the polarizing element is substantially aligned with an absorption axis of the front polarizer (the polarizers are aligned with each other in Figure 1).

Assouline does not appear to explicitly recite a backlight.

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Eberhardt teaches and discloses a backlight for an electro-optic display such as a liquid crystal display that serves to diffuse and distribute light from a point source over a broad, flat, thin area thus providing backlighting for the display and for providing light when ambient light is insufficient (ABS, column 1, lines 26-46, entire patent).

Eberhardt is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to incorporate a backlight into a display device at least to provide light when ambient light is insufficient.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Assouline in view of Eberhardt to provide a backlight into a reflective or transmissive display that can (1) provide backlighting to the display when ambient light is insufficient, and (2) to diffuse and distribute light from a point source over a broad, flat, thin area as noted.

Assouline does not appear to explicitly specify a guest host liquid crystal display panel.

Mukai teaches and discloses a display device finder in which guest-host liquid crystal material is employed so that contrast and brightness of a screen can be improved (Patent Abstracts of Japan).

Mukai is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to include guest-host liquid crystal material into a display device so that contrast and brightness could be improved.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Assouline in view of Mukai to incorporate guest-

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host liquid crystal into a display device so that contrast and brightness of the device could be improved.

As to claim 2, Assouline furthermore includes a rear polarizer (Figure 1, polarizer 21) included in the at least one polarizer, said rear polarizer being located on a rear side of the liquid crystal layer (Figure 1).

As to claim 4, in Assouline, the rear polarizer (Figure 1, polarizer 21) is united with the display.

As to claim 6, the polarizers of Assouline are integrated with at least a given substrate because the polarizers and substrates form a unitary device.

As to claim 7 (amended), with reference to at least Figure 1, Assouline has a display element that outputs polarized light (Figure 1, plate 3, column 2, lines 21-25, and column 1, lines 13-29), a light diffusing element (Figure 1, diffuser 4), which is disposed in front of the display element, and a polarizing element (Figure 1, polarizer 23), which is disposed in front of the light diffusing element (4); and wherein an absorption axis of the polarizing element (23) is defined so that substantially all of the polarized light that has been output from the display element is transmitted through the polarizing element (column 4, lines 22-24, entire patent).

Assouline does not appear to explicitly specify a backlight.

Eberhardt teaches and discloses a backlight for an electro-optic display such as a liquid crystal display that serves to diffuse and distribute light from a point source over a broad, flat, thin area thus providing backlighting for the display and for providing light when ambient light is insufficient (ABS, column 1, lines 26-46, entire patent).

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Eberhardt is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to incorporate a backlight into a display device at least to provide light when ambient light is insufficient.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Assouline in view of Eberhardt to provide a backlight into a reflective or transmissive display that can (1) provide backlighting to the display when ambient light is insufficient, and (2) to diffuse and distribute light from a point source over a broad, flat, thin area as noted.

Assouline does not appear to explicitly specify a guest host liquid crystal display panel including a guest-host type display.

Mukai teaches and discloses a display device finder in which guest-host liquid crystal material is employed so that contrast and brightness of a screen can be improved (Patent Abstracts of Japan).

Mukai is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to include guest-host liquid crystal material into a display device so that contrast and brightness could be improved.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Assouline in view of Mukai to incorporate guest-host liquid crystal into a display device so that contrast and brightness of the device could be improved.

As to claim 9 (amended), with reference to at least Figure 1, Assouline has a display element including a liquid crystal layer (Figure 1, plate 3, column 2, lines 21-25), and at least

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one polarizer including a front polarizer (Figure 1, polarizer 22), a light diffusing element, which is disposed in front of the display element (Figure 1, diffuser 4), and a polarizing element, which is disposed in front of the light diffusing element (Figure 1, polarizer 23) wherein the light diffusing element (4) is located between the front polarizer (22) and the polarizing element (23) all of which are located in front of the liquid crystal layer (3), and wherein an absorption axis of the polarizing element is substantially aligned with an absorption axis of the front polarizer (the polarizers are aligned with each other in Figure 1).

Assouline does not appear to explicitly recite a backlight.

Eberhardt teaches and discloses a backlight for an electro-optic display such as a liquid crystal display that serves to diffuse and distribute light from a point source over a broad, flat, thin area thus providing backlighting for the display and for providing light when ambient light is insufficient (ABS, column 1, lines 26-46, entire patent).

Eberhardt is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to incorporate a backlight into a display device at least to provide light when ambient light is insufficient.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Assouline in view of Eberhardt to provide a backlight into a reflective or transmissive display that can (1) provide backlighting to the display when ambient light is insufficient, and (2) to diffuse and distribute light from a point source over a broad, flat, thin area as noted.

Assouline does not appear to explicitly specify a guest host liquid crystal display panel.

Mukai teaches and discloses a display device finder in which guest-host liquid crystal material is employed so that contrast and brightness of a screen can be improved (Patent Abstracts of Japan).

Mukai is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to include guest-host liquid crystal material into a display device so that contrast and brightness could be improved.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Assouline in view of Mukai to incorporate guest-host liquid crystal into a display device so that contrast and brightness of the device could be improved.

As to claim 10 (amended), with reference to at least Figure 1, Assouline has a display element that outputs polarized light (Figure 1, plate 3, column 2, lines 21-25, and column 1, lines 13-29), a light diffusing element (Figure 1, diffuser 4), which is disposed in front of the display element, and a polarizing element (Figure 1, polarizer 23), which is disposed in front of the light diffusing element (4); and wherein an absorption axis of the polarizing element (23) is defined so that substantially all of the polarized light that has been output from the display element is transmitted through the polarizing element (column 4, lines 22-24, entire patent).

Assouline does not appear to explicitly specify a backlight.

Eberhardt teaches and discloses a backlight for an electro-optic display such as a liquid crystal display that serves to diffuse and distribute light from a point source over a broad, flat, thin area thus providing backlighting for the display and for providing light when ambient light is insufficient (ABS, column 1, lines 26-46, entire patent).

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Eberhardt is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to incorporate a backlight into a display device at least to provide light when ambient light is insufficient.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Assouline in view of Eberhardt to provide a backlight into a reflective or transmissive display that can (1) provide backlighting to the display when ambient light is insufficient, and (2) to diffuse and distribute light from a point source over a broad, flat, thin area as noted.

Assouline does not appear to explicitly specify a guest host liquid crystal display panel including a guest-host type display.

Mukai teaches and discloses a display device finder in which guest-host liquid crystal material is employed so that contrast and brightness of a screen can be improved (Patent Abstracts of Japan).

Mukai is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to include guest-host liquid crystal material into a display device so that contrast and brightness could be improved.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Assouline in view of Mukai to incorporate guest-host liquid crystal into a display device so that contrast and brightness of the device could be improved.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 4,088,400 (to Assouline et al.) in view of United States Patent 4,229,783 (to Eberhardt) and further in view of United States Patent 5,066,108 (to McDonald).

As to claim 3, Assouline has, with reference to Figure 3, a first $\lambda/4$ retarder disposed between the front polarizer (22) and the light diffusing element (4) (Figure 3, $\lambda/4$, 61) and a second $\lambda/4$ retarder disposed between the light diffusing element (4) and the polarizing element (23) (Figure 3, $\lambda/4$, 62).

Assouline does not appear to explicitly specify the precise relationships between slow axis of the first retarder with respect to the front polarizer and the slow axis of the second retarder with respect to the first retarder.

Assouline does, however, teach the need for the orientation of the wave plate slow axis with respect to that of the polarizer to be about 45 degrees (column 3, lines 50-68, entire patent) as an improvement to the Assouline devices as illustrated in Figures 1 and 2.

Furthermore, McDonald teaches and discloses a high throughput contrast enhancement for polarized displays in which it is preferred to have retarders having fast and slow axes oriented at 90 degrees relative to each other and a linear polarizer to have a vertical transmission axis for wideband image sources (column 2, lines 59-68 and entire patent).

McDonald is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to optimize the relationships between slow axis of the first retarder with respect to the front polarizer and the slow axis of the second retarder with respect to the first retarder for wideband image sources.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Assouline in view of McDonald for wideband image sources.

Response to Arguments

Applicant's arguments filed May 14, 2004 have been fully considered but they are not persuasive.

1. Applicant's ONLY Argument: Applicant's only argument focuses on guest-host material. In Applicant's Response, Applicant states that [g]uest-host type LCD are particularly advantageous in that the number of polarizers can be reduced thereby increasing transmission properties, and the brightness of the display can thus be improved." (Response at Page 6). Applicant furthermore states that Assouline [prior art reference] requires polarizers to effect display since Assouline is not of the guest-host type." (Pages 6-7). Applicant later states " ... there is absolutely no suggestion in the art of record for providing a guest-host type of LCD with multiple polarizing devices ..." (Page 7).

1. Examiner's Response to Applicant's ONLY Argument: Applicant's arguments are not persuasive because at least for the following reasons. (1) Applicant's claims and the structure as taught and disclosed by Assouline in view of Eberhardt [prior art reference] are the same. In fact, Applicant does not argue the structures of the prior art. (2) Assouline has multiple polarizers – just as in Applicant's claimed invention. (3) Mukai teaches and discloses that guest-host liquid crystal material renders a device with improved contrast and brightness.

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One of ordinary skill in the art of liquid crystals at the time the invention was made would have been motivated to include a guest-host liquid crystal material into a multiple polarizer device (like that of Assouline) at least to improve upon contrast and brightness. In fact, Applicant has noted that guest-host material is advantageous in that it contributes to improved brightness which is exactly what Mukai teaches, discloses, and suggests.

Applicant has not argued the rejections of the dependent claims (3 and 6) and is considered to have acquiesced to the rejections.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (571)272-2289.

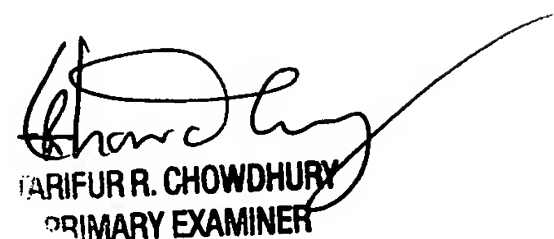
The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeanne Andrea Di Grazio
Patent Examiner
Art Unit 2871

JDG


TARIFUR R. CHOWDHURY
PRIMARY EXAMINER